

A Large Posteromedial Parameniscal Cyst Masquerading a Baker's Cyst: An Unusual Presentation

Subodh Kumar Pathak¹, Aryan Sharma¹, Rakesh Kumar Gautam¹, Priyank Bagtharia¹

Learning Point of the Article:

Differential diagnosis of parameniscal cyst and Combined approach for successful resolution and prevention of recurrence of large parameniscal cyst.

Abstract

Introduction: Meniscal cysts are rare and strongly associated with a horizontal meniscal lesion. Arthroscopic partial meniscectomy of the meniscus with intra-articular cyst drainage has become the standard of care for small cyst; however, sometimes large cyst requires open excision.

Case Presentation: We report a case of a large symptomatic medial parameniscal cyst in 52-year-old female which was clinically misdiagnosed as Baker's cyst. The patient had swelling over the posteromedial aspect of the right knee with difficulty and pain on squatting. Magnetic resonance imaging (MRI) reported horizontal tear in the posterior horn of medial meniscus and parameniscal cyst adjacent to medial meniscus with features of early osteoarthritis of the knee. She was successfully treated with open excision and repair of the defect of the cyst along with arthroscopic partial medial meniscectomy.

Conclusion: This case highlights the importance of MRI in diagnosis and planning and the use of a combined approach for successful management of large parameniscal cyst.

Keywords: Medial meniscal cyst, open excision, Baker's cyst, arthroscopic meniscectomy.

MeSH terms: Parameniscal cyst, Medial meniscus, Baker's cyst, Arthroscopy

Introduction

Meniscal cysts are reportedly rare pathology with a known incidence of around 1–8% with a maximum incidence in males of 20–30 years age group. In most of the cases of a medial meniscal cyst, the presence of an associated typical horizontal tear of the medial meniscus is seen on magnetic resonance imaging (MRI), thereby supporting its etiological theory [1, 2]. The medial parameniscal cyst is usually larger as compared to the lateral cyst [3]. The most common presentation includes joint line tenderness, swelling around the knee joint, mechanical block to knee movements, occasionally as a palpable mass or can be asymptomatic [4]. The size of the meniscal cyst changes with the position of the knee joint and is usually most prominent in 20–30 of flexion (Pisani Sign) [5]. The treatment in symptomatic cases depends on the presence of meniscal tear

and includes arthroscopic partial meniscectomy/repair with cyst decompression or open cyst decompression with meniscus repair. We report a case of previously misdiagnosed large posteromedial meniscal cyst which was treated with open excision and repair of base along with arthroscopic partial medial meniscectomy.

Case Report

A 52-year-old female with complaints of the right knee pain and swelling was referred to us in the outpatient clinic with a diagnosis of Baker's cyst. The pain increased on squatting and climbing stairs and was associated with swelling in the posteromedial aspect of the knee joint for the past 11 months. There was no history of the previous trauma, no intermittent locking of the knee joint, and unremarkable medical history. On

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Author's Photo Gallery



Dr. Subodh Kumar Pathak



Dr. Aryan Sharma



Dr. Rakesh Kumar Gautam



Dr. Priyank Bagtharia

¹Department of Orthopedics, MMIMSR, M M Deemed to be University, Mullana, Ambala, Haryana, India.

Address of Correspondence:

Dr. Subodh Kumar Pathak,
Department of Orthopaedics, MMIMSR, M M Deemed to be University, Mullana, Ambala, Haryana, India.
E-mail: drsubodh08@gmail.com



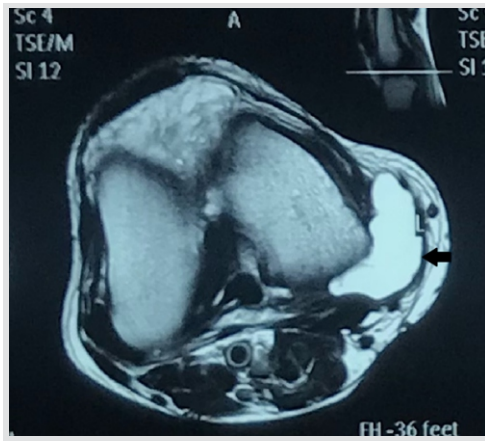


Figure 1a: An axial slice T2-weighted MR image shows a meniscal cyst (Black arrow), demonstrated by the hyperintense signal adjacent to the meniscus.

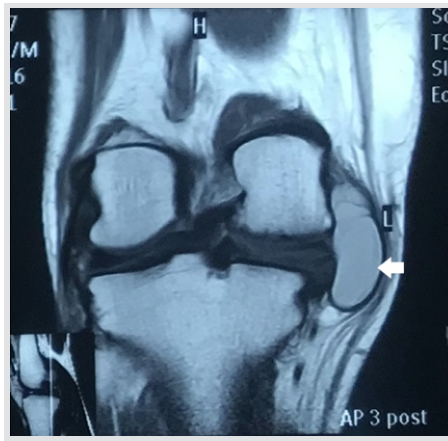


Figure 1b: T1-Weighted coronal image showing a hypointense large medial meniscal cyst (white arrow) extending around the medial collateral ligament into the soft tissues.

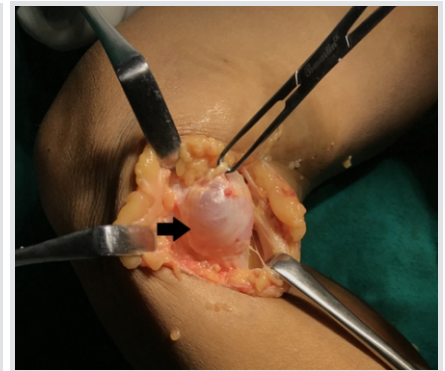


Figure 2: Intraoperative image of cyst (black arrow).

peripheral margin of the meniscus and typically measure between 0.3 and 9 mm in diameter [2]. The etiopathology of the parameniscal cyst is controversial.

examination, there was a solitary, firm, cystic, fluctuant, immobile, and slightly tender swelling on the posteromedial aspect of the right knee joint of size around 4 × 3 cm with no local signs of inflammation. There was joint line tenderness on the medial aspect with positive McMurray's test for a medial meniscus tear and no ligamentous instability. Knee range of motion was 0–120 with terminal flexion painful. The plain radiograph showed evidence of early osteoarthritis of the medial compartment along with patellofemoral arthritis. MRI knee demonstrated a large well-defined cystic lesion medial to semimembranosus and semitendinosus at the posteromedial aspect of the right knee joint of size around 3.9 × 3.0 × 2.5 cm with few thin internal septations. The lesion was hyperintense on T2-weighted and fat suppression images while it was hypointense on T1 weighted image (Fig 1a and b) also noted was a horizontal tear in the posterior horn and body of the medial meniscus and oblique tear in the posterior horn of the medial meniscus. The patient was posted for surgery and underwent arthroscopic partial medial meniscectomy and open excision of the cyst in its entirety along with its stalk through a medial incision under spinal anesthesia (Fig. 2). The base of the cyst was traced and sutured with the synovial lining, thereby repairing the defect. The excised sample was sent for histopathological evaluation and found to be a cystic structure lined by flattened epithelium with walls made of fibrocollagenous tissue infiltrated sparsely with lymphonuclear infiltrate and foamy histiocytes which were consistent with a meniscal cyst. Post-operative period was uneventful and at 2-year follow-up, there was no recurrence, pain, instability, or locking of knee joint. The patient had 0–120 active, painless range of motion at the knee joint. The patient was able to return to her daily activities without any limitations.

Discussion

Parameniscal cysts are small cystic lesions located along the

Studies have shown that trauma, chronic infection, hemorrhage, arthritic lesions, and knee deformities may lead to the development of a cyst. However, the most accepted theory is that a meniscal lesion leads to extrusion of synovial fluid forming a collection in the adjacent parameniscal soft tissue [2, 6]. We performed a literature review and came across only four previous case reports of medial parameniscal cysts larger than 2 cm in diameter in the English literature [3, 4, 6, 7] and few with smaller size. Of these, open excision was done in three cases and arthroscopic excision in one of them. Herode et al. reported a post-traumatic medial parameniscal cyst treated with the arthroscopic posterior transseptal approach. However, the cyst was <2 cm in the reported case [8]. Smaller cysts are usually asymptomatic, while larger cysts can present with pain and swelling due to pressure on the nearby structures [4, 7]. In our case, the patient experienced pain on the posteromedial aspect of the knee and progressively increasing swelling for 11 months. Although arthroscopic meniscectomy with cyst decompression is the standard line of treatment, it is useful in the small cyst and one may face difficulty in cases of a large cyst, and those with the involvement of medial collateral ligaments which warrant open excision [9]. In our case, the cyst was large with a size of 4 cm and removed along with its stalk with open excision followed by arthroscopic partial meniscectomy. All reported cases have described a lesion in the medial meniscus along with cyst [3, 4, 7]. In our case, MRI showed a voluminous ovoid lesion with a water-rich content which was hyperintense on T2W along with a horizontal and oblique tear in the posterior horn of the medial meniscus.

Differential diagnosis to knee mass with or without mechanical block to knee movements includes meniscal/parameniscal cyst, Baker's cyst, synovial cyst, osteophytes in degenerative joint disease, meniscus tear, and osteochondral defect. A large posteromedial meniscal cyst may be commonly confused with Baker's cyst due to the size and the location, but it is important

to differentiate between the two due to the differences in etiology and management. Baker's cysts are commonly related to the degenerative arthritis of the knee joint and may often resolve spontaneously hence can be managed conservatively [10]. On the other hand, the meniscal cyst usually warrants excision and repair of the meniscal defect to prevent a recurrence. In our case, the patient was previously misdiagnosed by a general practitioner with Baker's cyst probably due to the age, typical location of the swelling, and concomitant osteoarthritis of the knee. MRI is useful in differentiating the two as a parameniscal cysts occur immediately adjacent to the meniscal tear and produce a homogenous signal in cases where meniscal tear communicates directly with the cyst [1, 2, 11].

Conclusion

Although arthroscopic decompression of cyst is the standard line of treatment, one should not hesitate in open excision of

large medial meniscal cyst adjoining the medial collateral ligament as identifying the base of the cyst and closing the meniscal defect is of prime importance in preventing recurrence and achieving a good functional outcome.

The patient was informed that data concerning the case would be submitted for publication, and the consent was provided.

Clinical Message

This cases highlights the importance of combined approach (arthroscopic and open) for excision of the large medial meniscal cyst along its base so as to prevent a recurrence of the disease.

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Consent: The authors confirm that Informed consent of the patient is taken for publication of this case report

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